

NIVISYS[™]_{LLC}
OPERATOR MANUAL
MUM-14
Multi-Use Mini Monocular



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**OPERATOR
MANUAL
for**

MUM-14
Multi-Use Mini Monocular

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ADVISORY OVERVIEW

The following description categorizes the level of risk associated with each cautionary statement displayed throughout the manual.

WARNING

HIGHLIGHTS AN OPERATION OR PROCEDURE WHICH, IF NOT STRICTLY OBSERVED, COULD RESULT IN INJURY TO OR DEATH OF PERSONNEL.

CAUTION

HIGHLIGHTS AN OPERATION OR PROCEDURE WHICH, IF NOT STRICTLY OBSERVED, COULD RESULT IN DAMAGE TO OR DESTRUCTION OF EQUIPMENT OR LOSS OF MISSION EFFECTIVENESS.

NOTE

HIGHLIGHTS AN ESSENTIAL OPERATION, PROCEDURE, CONDITION OR STATEMENT.

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TABLE OF CONTENTS

Advisory Overview	iii
Table of Contents	v
Table of Contents	vi
List of Figures	viii
List of Tables	ix

CHAPTER 1: GENERAL INFORMATION **1-1**

1.1	Introduction	1-1
1.2	Equipment Description	1-1
1.3	Standard Kit Parts List	1-2
1.4	Standard Kit Parts Illustration	1-3
1.5	Optional Items List	1-4
1.6	Optional Items Illustration	1-5
1.7	System Performance and Data	1-6

CHAPTER 2: PREPARATION FOR USE **2-1**

2.1	Introduction	2-1
2.2	Battery Precautions	2-1
2.3	CR123 Battery Installation	2-2
2.4	AA Battery Installation	2-3
2.5	Eyecup Installation	2-4
2.6	Demist Shield Installation	2-4
2.7	Sacrificial Window Installation	2-6
2.8	Headmount Adjustment and Installation	2-7
2.9	Attaching the Swing Arm to the MUM-14	2-9
2.10	Attaching the Swing Arm Adapter to a Helmet/ Head Mount	2-10
2.11	Detaching the Swing Arm Adapter From a Helmet or Head Mount	2-11
2.12	Rotating Swing Arm Adapter From Eye To Eye	2-11

TABLE OF CONTENTS (CONT.)

2.13	Installation of Weapon Mount	2-12
2.14	Objective Lens Cap Installation	2-14
2.15	IR Spot/Flood Lens Installation	2-15

CHAPTER 3: OPERATING INSTRUCTIONS **3-1**

3.1	Introduction	3-1
3.2	Operational Precautions	3-1
3.3	Controls and Indicators	3-1
3.4	Activating the MUM-14	3-4
3.5	Operations with IR Source	3-4
3.6	Low Battery Indicator	3-5
3.7	Diopter Adjustment	3-5
3.8	Objective Focus Ring	3-6
3.9	Hand-held Operation	3-6
3.10	Head Mounted Operation	3-7
3.11	Operation in Conditions of Blowing Dust or Sand	3-9
3.12	Operation in Rainy or Humid Conditions	3-10
3.13	Operation in Salt Water Areas	3-10
3.14	Shutting Down the Unit	3-10
3.15	Preparation for Storage	3-11

CHAPTER 4: MAINTENANCE INSTRUCTIONS **4-1**

4.1	Introduction	4-1
4.2	Preparing for Maintenance	4-1
4.3	Cleaning the MUM-14	4-1
4.4	Cleaning the Optics	4-2
4.5	Checking for Damage and Corrosion	4-2

TABLE OF CONTENTS (CONT.)

CHAPTER 5:TROUBLESHOOTING	5-1
5.1 Troubleshooting Procedures	5-1
APPENDIX A: SPARE AND REPAIR PARTS LIST	A-1
A.1 Introduction	A-1
A.2 Contact Information	A-1
A.3 Spare Part List	A-1
APPENDIX B: WARRANTY INFORMATION	B-1

LIST OF FIGURES

1-1	Standard Kit Parts Illustration	1-3
1-2	Optional Parts Illustration	1-5
2-1	CR123 Battery Installation	2-2
2-2	AA Battery Installation	2-3
2-3	Eyecup Installation	2-4
2-4	Demist Installation	2-5
2-5	Sacrificial Window Installation	2-6
2-6	Headmount Illustration	2-8
2-7	Swing Arm Adapter	2-9
2-8	Attaching the Swing Arm Adapter to a MUM-14	2-10
2-9	Attaching a MUM-14 to a Helmet/Head Mount	2-10
2-10	Swing Arm Rotation	2-11
2-11	Weapon Mount Installation	2-13
2-12	Lens Cap Installation	2-14
2-13	IP Spot Flood Lens Installation	2-15
3-1	Controls and Indicators	3-2
3-2	Diopter Adjustment Ring	3-5
3-3	Objective Focus Ring	3-6
3-4	Head Mounted Operation	3-9

LIST OF TABLES

1-1	Standard Kit Parts List	1-2
1-2	Optional Items List	1-4
1-3	System Performance and Data	1-6
3-1	Controls and Indicators	3-3
5-1	Troubleshooting	5-1
A-1	Spare and Repair Parts List	A-1

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CHAPTER 1:

GENERAL INFORMATION

1.1 Introduction:

This manual provides operation and maintenance instructions for the MUM-14. It also provides specifications and data on the performance of the monocular. To ensure the safety of the operator and the correct operation of the monocular it is recommended that this manual is read carefully in its entirety before any deployment or field application.

1.2 Equipment Description:

The MUM-14 is a self-contained night vision device that enables improved night vision using ambient light from sources in the night sky such as the moon, stars and/or sky glow.

The monocular is comprised of an objective lens, image intensifier and eyepiece lens. The objective lens collects light reflected from the night scene and focuses an inverted image of the scene on the image intensifier. The image intensifier converts the captured light into a visible image and reinverts the image which can then be viewed through the eyepiece lens.

The MUM-14 uses the MX-10160 type GEN III image intensifier and is configured with an optimal gain setting for most situations. In situations where there is no light at all, the unit is equipped with an IR flashlight enabling the unit to operate. Although IR light is invisible to the human eye, it is detectable by other night vision devices.

Extremely lightweight and versatile, the MUM-14 can be hand-held, head-mounted, helmet-mounted, camera/camcorder adapted or weapons mounted as a tactical night scope.

1.3 Standard Kit Parts List:

The standard MUM-14 kit comes with the items listed in the following chart.

Item	Part No.	Description	Qty.
1	NVM-31250 NVM-31600 NVM-31601	MUM-14, FOM 1250 MUM-14, FOM 31600 MUM-14, FOM 1601+	1
2	A3144422	Eyeclip Assembly	1
3	NVM-178	Objective Lens Cap	1
4	A3144306	Neck Cord	1
5	580-0001-0	AA Alkaline Battery	1
6	580-0002-0	CR123 Lithium Battery	1
7	NVM-033	Demist Shield	1
8	A3144267	Shoulder Strap	1
9	NVM-032	Sacrificial Window	1
10	170-010	Lens Tissue	1
11	830-0016-0	Operator Manual	1
12	830-0018-0	Quick Reference Guide (QRG)	1
13	A3187392	Soft Carrying Case	1
14	NVM-024	Weapon Mount	1
15	NVM-042	Headmount Adapter	1
16	A3144268	Headmount w/ Browpads (S, M, L)	1
17	NVM-038	Battery Adapter	1

Table 1-1 Standard Kit Parts List

1.4 Standard Kit Parts Illustration:

The illustration below is provided for quick identification of the standard parts of the MUM-14 kit.

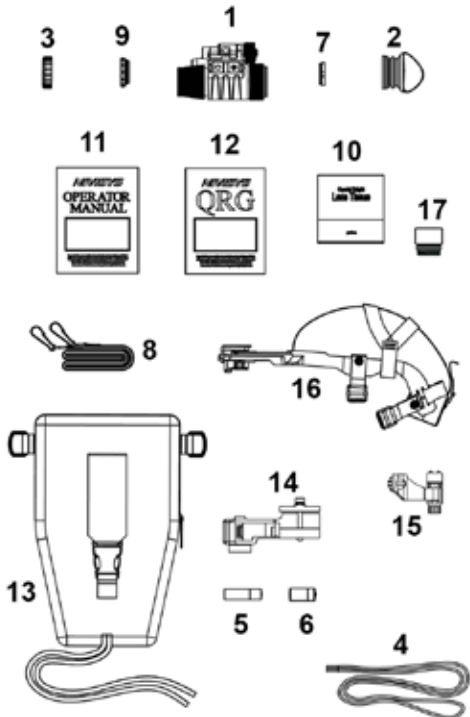


Figure 1-1 Standard Kit Parts Illustration

1.5 Optional Items List:

The MUM-14 is compatible with the following optional items and accessories listed in the following chart.

Item	Part No.	Description
1	7B257-2F	Shipping/Storage Case
2	A3256368	PASGT Helmet Mount
3	A3187430	Magnetic Compass
4	AA-473000-04	5X Afocal Lens
5	A3256391	3X Afocal Lens
6	A3256345	Shuttered Eye Guard
7	A3187441	IR Spot/Flood

Table 1-2 Optional Items List

1.6 Optional Items Illustration:

The illustration is provided as a visual key to optional items that can be used with the standard MUM-14.

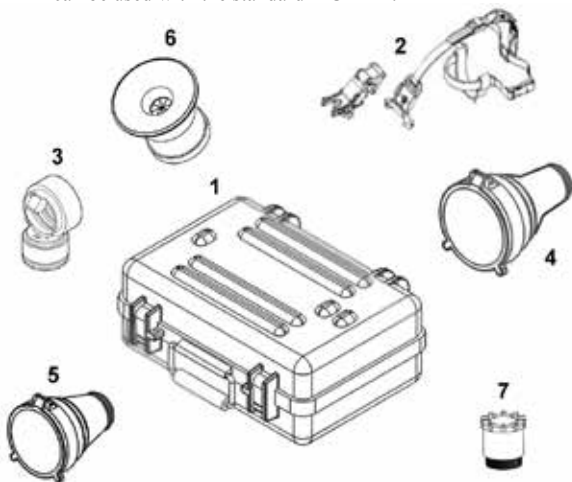


Figure 1-2 Optional Parts Illustration

1.7 System Performance and Data:

The chart below lists the technical specifications and data of the MUM-14 system. The data contained herein is subject to change without notice.

ITEM	LIMITS
Electrical Data	
Power Source	Battery (1.5V to 3.0V DC max.)
Battery Requirements	(1) AA Alkaline or (1) CR123 Lithium
Battery Life (AA Alkaline)	20 hrs @ 21°C (70°F)
Battery Life (Lithium)	40 hrs @ 21°C (70°F)
Physical Data	
Soft Carrying Case Dimensions	17.8cm x 30.1cm x 7.6cm (7" x 12" x 3")
Monocular Dimensions (L x W x H) Max.	11.4cm x 4.9cm x 7.9cm (4.5" x 1.9" x 3.1")
Monocular Weight (w/ battery)	305g (10.7 oz)
Optical Data	
Magnification	1.0X
Field of View	40°
Eyepiece of Focus	+4 to -6 diopters
Focus Range	25cm to infinity
Eye Relief	25mm

Table 1-3 System Performance and Data

ITEM	LIMITS
Optical Data	
Objective Lens	f/ 1.2
Resolution	≥ .86 to 1.30 cy/mR
Environmental Data	
Operating Temperature	-37° C to 54° C (-35° F to 129° F)
Storage Temperature	-51° C to 71° C (-60° F to 160° F)
Submersion	20m for 1 hour
Illumination Required	Overcast starlight to moonlight

Table 1-3 System Performance and Data, (cont.)

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CHAPTER 2: PREPARATION FOR USE

2.1 Introduction:

This section contains instructions for installing and attaching various components and accessories to the MUM-14 for operation under normal conditions.

2.2 Battery Precautions:

WARNING

INSPECT BATTERIES FOR BULGING PRIOR TO USE. IF THE BATTERY SHOWS SIGNS OF BULGING, DO NOT USE.

WARNING

DO NOT HEAT, PUNCTURE, DISASSEMBLE, SHORT CIRCUIT, INCINERATE, ATTEMPT TO RECHARGE OR OTHERWISE TAMPER WITH THE BATTERIES. TURN OFF THE MUM-14 IF THE BATTERY COMPARTMENT BECOMES UNDULY HOT. IF POSSIBLE, WAIT UNTIL THE BATTERIES HAVE COOLED BEFORE REMOVING THEM.

WARNING

DO NOT REPLACE BATTERIES IN A POTENTIALLY EXPLOSIVE ATMOSPHERE. CONTACT SPARKING MAY OCCUR WHILE INSTALLING OR REMOVING BATTERIES AND CAUSE AN EXPLOSION. FAILURE TO FOLLOW THESE INSTRUCTIONS COULD RESULT IN DEATH, INJURY OR IMPOSITION OF LONG-TERM HEALTH HAZARDS.

CAUTION

**OBEY THE BATTERY MANUFACTURER'S
DIRECTIONS FOR BATTERY DISPOSAL.**

2.3 CR123 Battery Installation:

The MUM-14 electronic circuit is powered by either a lithium CR123 battery or a AA alkaline battery. When using a CR123 battery, install as follows.

1. Remove the battery cap by turning it counter-clockwise.
2. Check to ensure the o-ring is present and in good condition. If not, replace it.
3. Insert the battery into the battery compartment, negative (-) ends first, positive ends toward the battery cap.
4. Replace battery cap, turning it clockwise until a stop occurs.

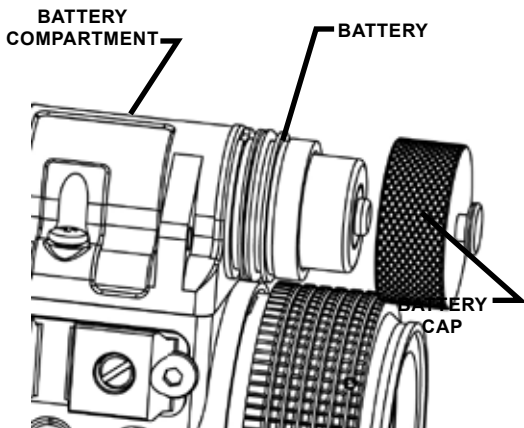


Figure 2-1 CR123 Battery Installation

2.4 AA Battery Installation:

When using a AA battery, the provided battery adapter must be used. Follow the procedure below.

1. Remove the battery cap by turning it counter-clockwise.
2. Check to ensure the o-ring is present and in good condition. If not, replace it.
3. Install the AA battery adapter by screwing it onto the battery sleeve in a clockwise direction until a stop occurs.
4. Insert battery into the battery compartment, negative (-) ends first, positive ends toward the battery cap.
5. Install the battery cap onto the battery adapter, turning it clockwise until a stop occurs.

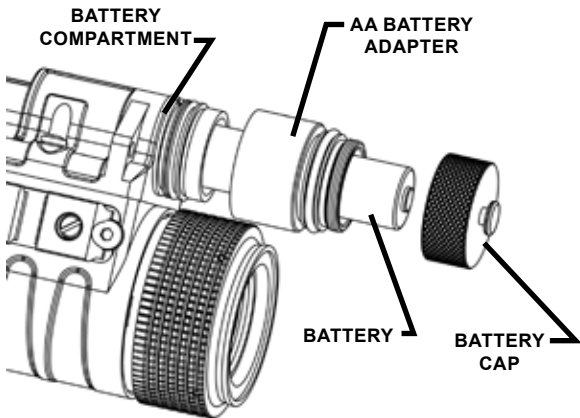


Figure 2-2 AA Battery Installation

2.5 Eyecup Installation:

Perform the following procedure to install eyecup onto the monocular.

1. Carefully press the eyecup over the end of the eyepiece lens.
2. Rotate the eyecup into proper viewing position. Adjust for best fit. The eyecup must seal around your eye to provide light security.

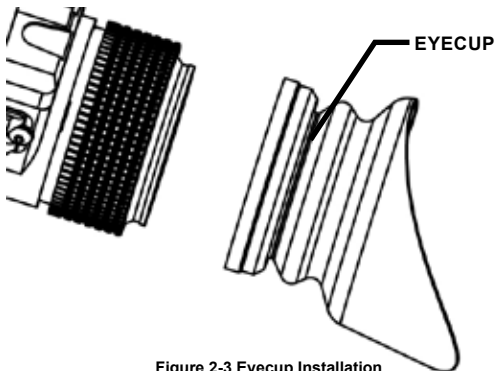


Figure 2-3 Eyecup Installation

2.6 Demist Shield Installation:

NOTE

IF INCLEMENT OPERATING CONDITIONS ARE EXPECTED TO EXIST (E.G. SIGNIFICANT TEMPERATURE CHANGE AND HIGH HUMIDITY), INSTALL DEMIST SHIELD TO MINIMIZE EYEPiece LENS FOG PRIOR TO EXECUTION OF MISSION.

Perform the following procedures to install the demist shield on the eyepiece lens.

1. Carefully remove the eyecup.
2. Gently screw the demist shield into the eyepiece until it seats, being careful not to smudge the demist shield.
3. Replace the eyecup.

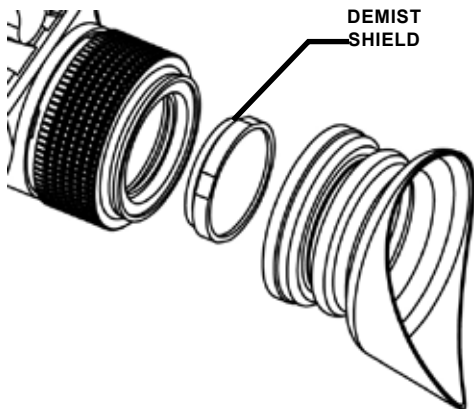


Figure 2-4 Demist Installation

CAUTION
**IF THE DEMIST SHIELD IS WIPED WHILE
WET OR WITH WET LENS TISSUE, YOU WILL
DAMAGE THE COATING.**

2.7 **Sacrificial Window Installation:**

Perform the following procedure to install the sacrificial window onto the objective lens assembly.

CAUTION

IF ADVERSE OPERATING CONDITIONS (BLOWING DUST OR SAND) ARE EXPECTED TO EXIST, ATTACH THE SACRIFICIAL WINDOW TO PROTECT THE OBJECTIVE LENS FROM SCRATCHES OR OTHER DAMAGE.

1. If the objective lens cap is in place, remove it.
2. Carefully push the sacrificial window into the objective lens with the sacrificial window threads facing toward the monocular.
3. Securely screw the sacrificial window into the lens until it seats.



Figure 2-5 Sacrificial Window Installation

2.8 Headmount Adjustment and Installation:

Perform the following procedure to adjust and install the headmount assembly.

CAUTION

DO NOT PUT ON THE HEADMOUNT WHILE THE MONOCULAR IS ATTACHED.

1. Prior to donning the headmount, loosen the four ends of the chinstrap approx. 2 inches from the sliding bar buckles.
2. Snap the front and rear snaps in place.

NOTE

IF THE HEADMOUNT IS TOO LOOSE, REMOVE THE ATTACHED THIN BROWPAD AND REPLACE WITH EITHER THE MEDIUM OR THICK BROWPAD SUPPLIED WITH THE HEADMOUNT.

3. With both hands grasp the neck pad and pull the harness over your head and the neck pad down to the back of your neck.
4. Holding the chin cup in position on chin, adjust both sides of the chinstrap until you feel light pressure against your chin. (DO NOT TIGHTEN.)
5. Maintain the position of the chin cup and remove any slack from the chinstrap. (DO NOT TIGHTEN.)
6. Ensure that the cross-strap is not twisted and remove slack by adjusting the vertical adjustment at the neck pad.
7. Adjust chinstrap and vertical adjustment until the chin cup and headband are in a comfortable but firm position.

NOTE

AFTER INSTALLING THE MONOCULAR, MINOR STRAP ADJUSTMENTS MAY BE NECESSARY TO ACHIEVE COMFORT.

8. Push the eye relief adjustment button and slide the headmount socket fully forward to receive the monocular.

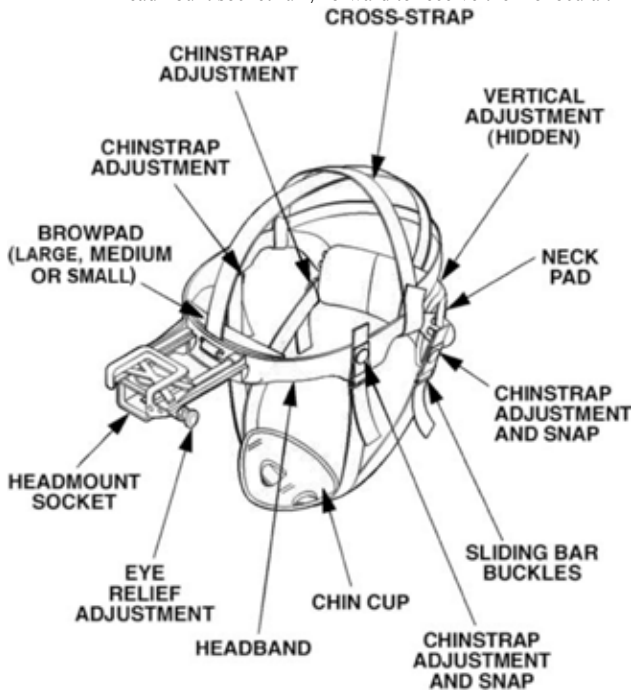


Figure 2-6 Headmount Illustration

2.9 Attaching the Swing Arm Adapter to the MUM-14:

The MUM-14 uses a Swing Arm Adapter to hold the MUM-14 in position when attached to a head or helmet mount.

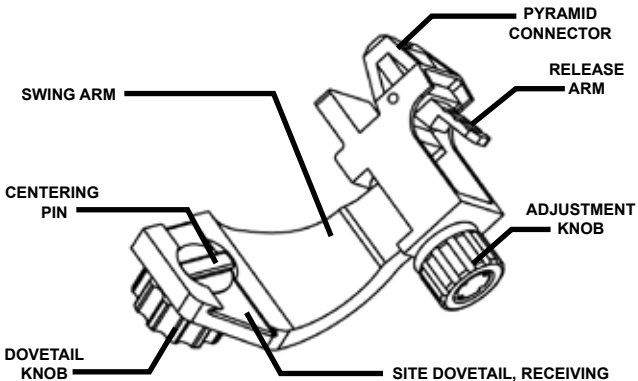


Figure 2-7 Swing Arm Adapter

1. Hold the MUM-14 in one hand.
2. Hold the swing arm adapter in the other hand. With the fore-finger and the thumb, rotate the dovetail knob an eight turn in either direction. This will raise the centering pin.
3. Slide the MUM-14 dovetail into the receiving dovetail of swing arm adapter until centered.
4. Release Dovetail knob. The dovetail knob is spring loaded and will recoil and clamp mount onto MUM-14.
5. Manually check to insure a secure fit. The MUM-14 should not be able to release from mount while dovetail knob is interfaced properly with dovetail system of MUM-14.



Figure 2-8 Attaching the Swing Arm Adapter to a MUM-14

2.10 Attaching Swing Arm Adapter To a Helmet/Head Mount:

1. Slide pyramid connector (male end), located on swing arm adaptor into receiving end of pyramid located on head or helmet mount.
2. A “click” will be heard as the release arm snaps into place.
3. Manually check to ensure that the swing arm adapter will not detach from the head or helmet mount.

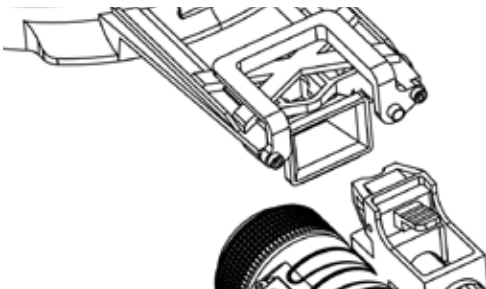


Figure 2-9 Attaching a MUM-14 to a Helmet/Head Mount

2.11 Detaching the Swing Arm Adapter From a Helmet or Head Mount:

1. Depress the release arm and pull swing arm adapter from the head or helmet mount.

2.12 Rotating Swing Arm Adapter From Eye To Eye:

1. Loosen adjustment knob. It will automatically stop when fully loosened.
2. Pull swing arm out towards adjustment knob. This will disengage the swing arm from the shaft splines and will unlock the adapter assembly.
3. Rotate swing arm until in a satisfactory position.
4. Release swing arm. It will automatically recoil into a spline-locked position.
5. Tighten adjustment screw. This will keep the swing arm from accidentally disengaging from a locked position.

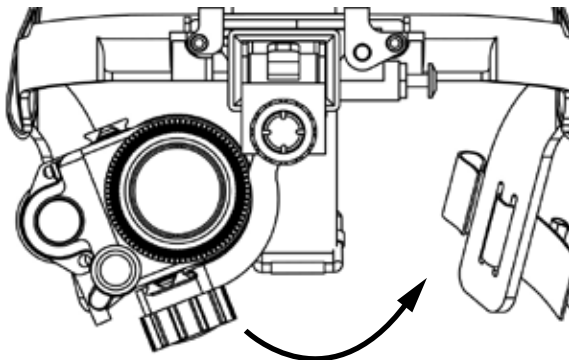


Figure 2-10 Swing Arm Rotation

WARNING

DO NOT ATTEMPT TO ROTATE THE SWING ARM WITHOUT LOOSENING THE ADJUSTMENT KNOB AND DISENGAGING THE LOCKING SPLINES ON THE SHAFT. FAILING TO DO SO MAY RESULT IN PERMANENT DAMAGE TO THE SWING ARM ADAPTER.

2-13 Installation of Weapon Mount:

Perform the following procedure to install the weapon mount.

CAUTION

THE MUM-14 IS NOT A WEAPON SIGHT, HOWEVER, IT CAN BE USED IN CONJUNCTION WITH A COLLIMATED DOT SIGHT OR LASER AIMING DEVICE.

NOTE

IT IS RECOMMENDED THAT THE EYECUP BE REPLACED WITH THE SHUTTERED EYEGUARD DURING WEAPON MOUNTED USE.

1. Orient the monocular and weapon mount as shown in Figure 2-11.
2. Pull down on the weapon mount release lever.
3. Slide one of the two mini dovetail rails of the MUM-14 into the weapon mount alignment groove.
4. Release the release lever and ensure it is locked into the mini dovetail rail of the monocular.
5. Loosen the clamping screw of the weapon mount.
6. Position the weapon mount with the monocular onto the weapon's mounting rail.
7. Fasten the monocular onto the weapon by securely

tightening the clamping knob.

8. Check the position of the monocular by holding the weapon in your normal firing position. Adjust the fore/aft position of the monocular as necessary by loosening the clamping screw and repositioning the weapon mount on the weapon's mounting rail.

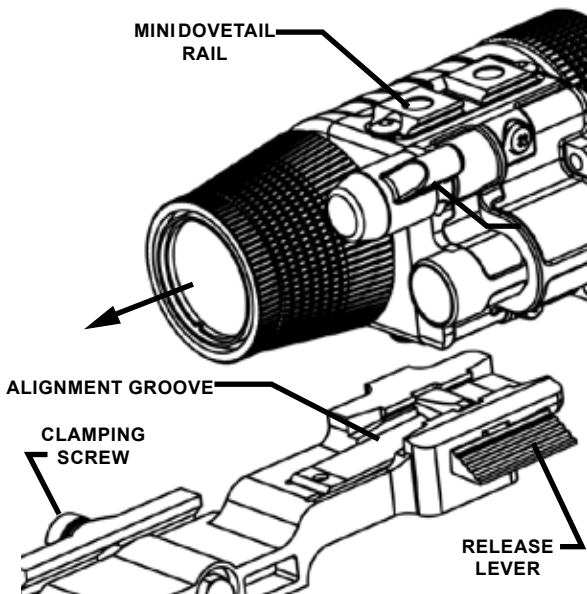


Figure 2-11 Weapon Mount Installation

2.14 Objective Lens Cap Installation:

1. Place the lens caps over objective lens.
2. Push the lens caps firmly over the objective lens housings until they are seated squarely.
3. Ensure the lens caps are securely retained by the neck cord.

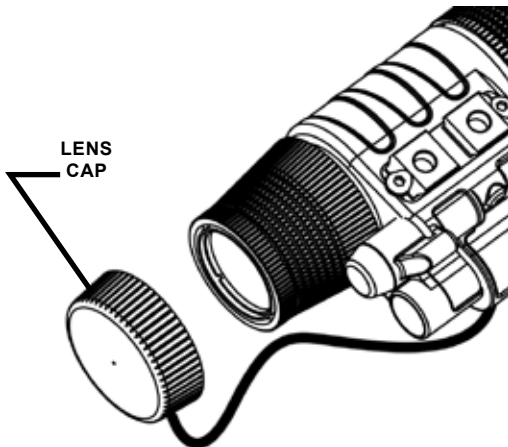


Figure 2-12 Lens Cap Installation

CAUTION

**LENS CAPS SHOULD BE PLACED OVER
OBJECTIVE LENSES FOR ANY DAY TIME
APPLICATIONS TO PROTECT THE IMAGE
TUBE FROM BEING DAMAGED.**

2.15 IR Spot/Flood Lens Installation:

1. Press the IR spot/flood lens over the IR source.
2. Ensure it is seated squarely against the MUM-14 housing for a secure fit.

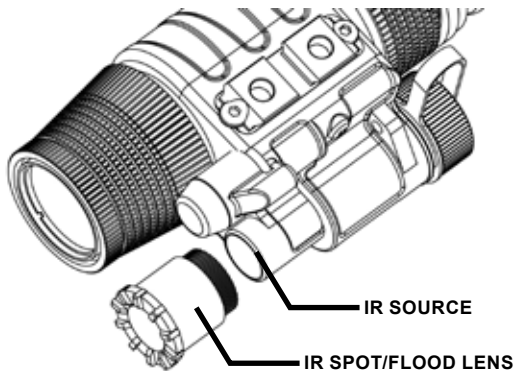


Figure 2-13 IR Spot Flood Lens Installation

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CHAPTER 3:

OPERATING INSTRUCTIONS

3.1 Introduction:

This chapter contains instructions for the safe operation of the MUM-14 under normal circumstances and environments.

3.2 Operational Precautions:

CAUTION

THE MUM-14 REQUIRES SOME AMBIENT (MOONLIGHT, STARLIGHT, OR ARTIFICIAL LIGHT, ETC.) TO OPERATE. THE LEVEL OF PERFORMANCE DEPENDS ON THE LEVEL OF LIGHT.

NIGHT LIGHT IS REDUCED BY PASSING CLOUD COVER, WHILE OPERATING UNDER TREES, IN BUILDING SHADOWS, ETC.

THE MUM-14 IS LESS EFFECTIVE VIEWING INTO SHADOWS AND OTHER DARKENED AREAS.

THE MUM-14 IS LESS EFFECTIVE THROUGH RAIN, FOG, SLEET, SNOW, SMOKE, AND OTHER REFLECTIVE MATERIAL.

3.3 Controls and Indicators:

The MUM-14 is designed to adjust for different users and corrects for most differences in eyesight. The controls and indicators for the MUM-14 are shown in Figure 3-1 and are described in Table 3-1.

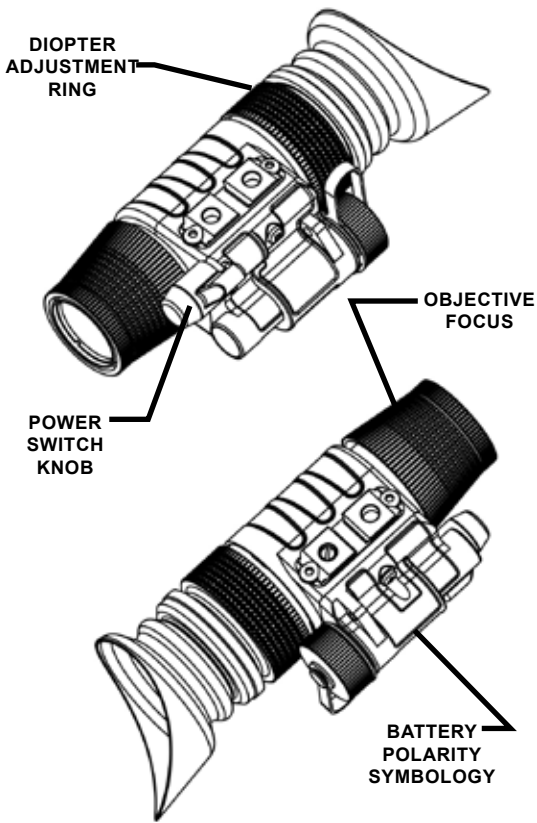


Figure 3-1 Controls and Indicators

Control and Indicators	Functions
Power Switch Knob	Controls power modes to the monocular in the designation of OFF, ON or IR.
OFF	All power is removed from the image intensifier.
ON	Power is supplied to the image intensifier and control electronics.
IR	PUSH and TURN. Power is supplied to the image intensifier and control electronics and the IR source.
IR Indicator	A steady red light indicates that the IR source is ON. It is visible through the eyepiece just outside the intensified field-of-view.
Low Battery Indicator	A blinking yellow light indicates a low battery with less than 30 minutes of battery life remaining. It is visible through the eyepiece just outside the intensified field-of-view.
Objective Focus	Focuses objective lens for scenes at different distances. Adjusts for sharpest image of viewed object.
Diopter Adjustment	Focuses eyepiece lens for use without the need for glasses. Adjust for sharpest image of intensifier screen.
Battery Polarity Symbology	This feature, molded into the battery cartridge, shows the proper orientation of the batteries.

Table 3-1 Controls and Indicators

3.4 Activating the MUM-14:

CAUTION

OPERATE THE MONOCULAR ONLY UNDER DARKENED CONDITIONS OR USE THE OBJECTIVE LENS CAP TO COVER THE OBJECTIVE LENS FOR DAYLIGHT CONDITIONS.

1. Ensure that the battery is installed correctly.
2. Turn the power switch knob to ON.
3. Verify that a green image is visible.

3.5 Operations with IR Source:

WARNING

THE IR SOURCE IS A LIGHT THAT IS INVISIBLE TO THE UNAIDED EYE FOR USE DURING CONDITIONS OF EXTREME DARKNESS. HOWEVER, THE LIGHT FROM THE IR SOURCE CAN BE DETECTED BY THE ENEMY USING NIGHT VISION DEVICES.

NOTE

THE PURPOSE OF THE IR SOURCE IS FOR VIEWING AT CLOSE DISTANCES UP TO 5 METERS WHEN ADDITIONAL ILLUMINATION IS NEEDED.

1. Ensure that the battery is installed correctly.
2. Turn the power switch knob to ON.
3. Verify that a green image is visible.

4. Observe that a red light appears in the eyepiece just outside the intensified field of view.
5. Rotate the power switch knob to ON to operate the unit without the IR source.

3.6 **Low Battery Indicator:**

When the unit is low on battery power, a blinking yellow light is visible in the eyepiece. The light will be located just outside the intensified field of view. This is to alert the operator of a low battery condition.

3.7 **Diopter Adjustment:**

To focus the eyepiece, in accordance with your specific optical correction, from +4 through -6 diopters do the following:

1. Power the monocular ON.
2. Look through the MUM-14 at the “noise” or “snow” on the screen.
3. Rotate the diopter adjustment ring as necessary for sharpest image of the “noise” or “snow”.

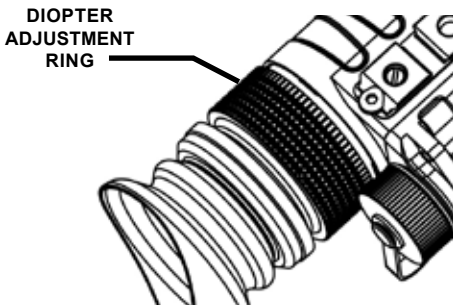


Figure 3-2 Diopter Adjustment Ring

3.8 Objective Focus Ring:

The monocular focus is adjustable from a minimum of 25cm (10 in) to a maximum of infinity. Typically, the infinity focus setting covers all scenes from 15 feet to infinity. To focus the monocular on an object at any distance:

1. Power the monocular ON.
2. Set the diopter adjustment for the clearest focus.
3. Look through the MUM-14 so that an object or scene appears on the screen.
4. Rotate the objective focus ring clockwise or counter-clockwise to sharpen focus.

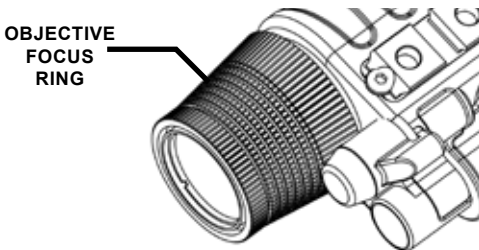


Figure 3-3 Objective Focus Ring

3.9 Hand-held Operation:

CAUTION

**OPERATE THE MONOCULAR ONLY
UNDER DARKENED CONDITIONS OR USE
THE OBJECTIVE LENS CAP TO COVER
THE OBJECTIVE LENS FOR DAYLIGHT
CONDITIONS.**

1. Ensure that the battery is installed correctly.
2. Switch the monocular ON.

NOTE

THE SHARPEST IMAGE WILL BE OBSERVED ONLY WHEN THE OBJECTIVE LENS AND EYEPIECE LENS ARE PROPERLY FOCUSED.

3. Rotate the diopter adjustment for the clearest view of the image intensifier screen.
4. Focus the objective lens while observing an object until the sharpest image is obtained.

3.10 Head Mounted Operation:

CAUTION

OPERATE THE MONOCULAR ONLY UNDER DARKENED CONDITIONS OR USE THE LENS CAP TO COVER THE OBJECTIVE LENS FOR DAYLIGHT CONDITIONS.

1. Ensure that battery is installed correctly.
2. Adjust and don the headmount following the instructions found in paragraph 2.8.

NOTE

TO MAKE IT EASIER TO ALIGN THE MONOCULAR, EYECUP, AND EYEPIECE LENS TO THE EYE, DEPRESS THE EYE RELIEF ADJUSTMENT BUTTON AND SLIDE THE HEADMOUNT SOCKET ALL THE WAY FORWARD BEFORE ATTACHING THE MONOCULAR.

3. Align the headmount/helmet mount adapter latch to the headmount socket. Press and hold down the latch lever while installing the monocular into the headmount socket. Release the latch when the monocular fully engages the socket.
4. Set the eye relief by depressing the eye relief adjustment button and move the monocular back toward your eye until the eyecup comfortably seals around the eye.
5. Switch the monocular ON.
6. Loosen the adjustment knob and adjust monocular until it is properly aligned with your eye. Tighten the adjustment knob to secure the monocular.

NOTE

THE SHARPEST IMAGE WILL BE OBSERVED ONLY WHEN THE OBJECTIVE LENS AND EYEPIECE LENS ARE PROPERLY FOCUSED.

7. Rotate the diopter adjustment for the clearest view of the image intensifier screen.

NOTE

ANY READJUSTMENT OF EYE RELIEF REQUIRES READJUSTMENT OF THE DIOPTER.

8. Adjust the eye relief distance by pressing the eye relief adjustment and sliding the monocular fore or aft to obtain a full field-of-view of the image. Reset the diopter adjustment for best image.
9. Adjust the objective lens focus while observing an object until the sharpest image is obtained.

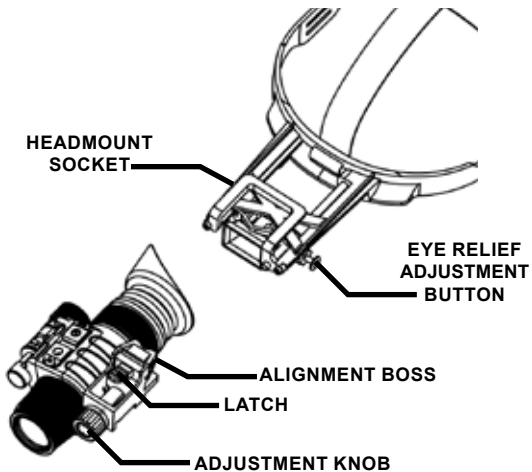


Figure 3-4 Head Mounted Operation

3.11 Operation in Conditions of Blowing Dust or Sand:

CAUTION

OPERATION IN BLOWING DUST OR SAND CAN PIT AND SCRATCH THE OPTICAL ELEMENTS AND DAMAGE THE MECHANICAL COMPONENTS UNLESS THE PRECAUTIONS GIVEN BELOW ARE OBSERVED.

1. Ensure that the sacrificial window is in place.
2. Avoid pointing the monocular into the wind unless necessary for operation.

3. Keep the carrying case closed unless removing items.
4. Ensure that all dust and sand is removed from the MUM-14 and carrying case after operation.

3.12 Operation in Rainy or Humid Conditions:

CAUTION

OPERATION IN RAINY OR HUMID CONDITIONS CAN CAUSE CORROSION AND DETERIORATION OF THE MUM-14 UNLESS THE PRECAUTIONS GIVEN BELOW ARE OBSERVED

1. Install the demist shield as instructed in this manual.
2. Keep the carrying case closed unless removing or replacing items.
3. Dry the monocular, mounts, and accessories after exposure to rain or high humidity and before storage. Do not store monocular in a wet carrying case.

3.13 Operation in Salt Water Areas:

After exposure to salt water, clean the unit as instructed in this manual by rinsing in fresh water and air drying the unit.

CAUTION

DO NOT STOW THE UNIT ITS CARRYING CASE WHEN WET.

3.14 Shutting Down the Unit:

Perform the following procedures to shut down the monocular.

1. Switch the monocular OFF.
2. Remove the monocular from the headmount, helmet mount or weapon and remove the weapon mount from the monocular.

3.15 Preparation for Storage:

1. Remove battery from the monocular.
2. Inspect the battery compartment for corrosion or moisture. Clean and dry if necessary.
3. Replace the battery cap.
4. Remove the demist shield or sacrificial window if installed. Install objective lens cap.

NOTE

PRIORTOPLACINGMUM-14INTOCARRYING CASE, ENSURE MUM-14AND CASE ARE FREE OF DIRT, DUST, AND MOISTURE.

5. Place the MUM-14, accessories and cleaning supplies back into their storage/carrying case. It is best to place the items in their original locations to prevent any possible damage to the unit and/or accessories.
6. Return to storage area.

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CHAPTER 4:

MAINTENANCE INSTRUCTIONS

4.1 Introduction:

The MUM-14 is designed to be used in diverse environments and rugged conditions. It is recommended to perform regular and simple maintenance for optimal system performance.

CAUTION

THE MONOCULAR IS A PRECISION ELECTRO-OPTICAL INSTRUMENT AND MUST BE HANDLED CAREFULLY.

DO NOT SCRATCH THE EXTERNAL LENS SURFACES OR TOUCH THEM WITH YOUR FINGERS.

WIPING DEMIST SHIELD WITH LENS TISSUE WHILE WET OR WITH WET LENS TISSUE CAN DAMAGE THE COATING.

4.2 Preparing for Maintenance:

Before performing any maintenance or cleaning of the system, remove the battery from the MUM-14.

4.3 Cleaning the MUM-14:

When necessary, use a moistened clean cloth to wipe the outside of the unit, EXCEPT FOR THE OPTICAL SURFACES. Be sure to wipe away excess dirt and dust that may restrict the performance or damage moving and mating parts. If needed, the use of a very diluted detergent solution is permissible. Dry with a soft clean cloth, or allow unit to air-dry before storing it.

4.4 Cleaning the Optics:

When cleaning of the lens is required, first blow any loose dirt or grit away from the surface of the lens. Use the supplied lens tissue lightly moistened with water or lens cleaning fluid to lightly wipe the optical surfaces, using a circular motion. Discard each lens tissue after one use to avoid transferring grit or foreign matter onto the lens surfaces. If the lens remains dirty use a cotton swab lightly moistened with lens cleaning fluid to remove the foreign matter from the lens. Dry with a clean unused lens tissue.

4.5 Checking for Damage and Corrosion:

As a general guideline, conduct an inspection of the MUM-14, accessories, and the case after every use. Look for heavy wear and cracks in rubber or plastic. Inspect for moisture or corrosion in electronic housings and in the battery compartment. Check for scratches, condensation and foreign matter on optical surfaces. Report missing or damaged items, for replacement.

CHAPTER 5: TROUBLESHOOTING

5.1 Troubleshooting Procedures:

Table 5-1 lists common malfunctions that you may find with your equipment. Perform the tests, inspections and corrective actions in the order they appear in the table.

This table cannot list all the malfunctions that may occur, all the tests and inspections needed to find the fault, or all the corrective actions needed to correct the fault. If the equipment malfunction is not listed or actions listed do not correct the fault, notify your maintainer.

Malfunction	Test for Inspection	Corrective Action
Monocular fails to activate.	Visual. Check for missing, improperly installed or defective battery.	Ensure that the power switch knob is in the ON or IR position. Replace battery or install correctly. If MUM-14 still fails to activate, refer to higher level of maintenance.

Table 5-1 Troubleshooting

IR source fails to activate.	In a dark location with system turned on, activate IR source. Visually check IR source operation; scene should brighten.	If IR source still fails to activate, refer to higher level of maintenance.
IR source indicator fails to activate.	Visual.	Refer to higher level of maintenance.
Poor image quality.	Check objective lens or eyepiece. Check for fogging or dirt on objective lens or eyepiece lens. Check eye relief distance.	Refocus. Clean lens surface. Readjust for proper eye relief distance.
Light visible around eyecup.	Check eyecup for resiliency.	If eyecup is defective, refer to higher level of maintenance.
Diopter adjustment cannot be made.	Check to see if the diopter adjustment is bent or broken.	If damaged, refer to higher level of maintenance.
Head straps cannot be tightened.	Check for defective buckles, fasteners or straps.	If damaged, refer to higher level of maintenance.

Table 5-1 Troubleshooting, (cont.)

<p>Headmount socket and headmount adapter latch do not catch.</p>	<p>Check socket or latch for dirt.</p> <p>Check socket or latch for damage.</p>	<p>Clean socket and latch.</p> <p>If damaged, return either headmount to higher level of maintenance.</p>
<p>Monocular does not cut off when exposed to high light.</p>	<p>Visual.</p> <p>Perform the following test under daylight or bright room light (not fluorescent light).</p> <p>Place the objective lens cap on the objective lens. Activate monocular and observe that it cuts off within 70 ± 30 seconds after energized.</p> <p>Cycle the power switch knob to OFF and then ATUO, ON or IR to reenergize monocular.</p>	<p>If damaged, return to higher level of maintenance.</p>

Table 5-1 Troubleshooting, (cont.)

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APPENDIX A: SPARE AND REPAIR PARTS LIST

A.1 Introduction:

This section provides information needed to identify, contact and order spare and/or repair parts for the MUM-14.

A.2 Contact Information:

To order spare or repair parts for the MUM-14 or any of your night vision products contact:

Nivisys, LLC
400 S. Clark Drive, Suite #105
Tempe, Arizona 85281 USA

Phone: 1-480-970-3222
Fax: 1-480-970-3555

A.3 Spare Part List:

The following is a list of parts that may be ordered for spare parts for the MUM-14.

Part No.	Description	Qty.
830-0016-0	MUM-14 Operators Manual	1
830-0018-0	Quick Reference Guide	1
NVM-033	Demist Shield	1
NVM-032	Sacrificial Window	1
A3144268	Head Mount Assembly	1

Table A-1 Spare and Repair Parts List

NVM-042	Swing Arm Adapter	1
NVM-038	Battery Adapter	1
NVM-024	Weapon Mount Assembly	1
A3144306	Neck Cord	1
A3144435	Neck Pad, Medium	1
A3144436	Neck Pad, Large	1
7B267	Shoulder Strap	1
NVM-138	Battery Cap Insert	1
580-0002-0	123 Lithium Battery	1
580-0001-0	AA Alkaline Battery	1
A3144315	Purge Screw	1
NVM-178	Lens Cap	1
NVM-032	Sacrificial Window	1
NVM-033	Demist Shield	1
NVM-156	Battery Cap Retainer	1
NVM-042	Head/Helmet Mount Adapter	1
A3144257	Ship/Storage Case	1
A3187392	Soft Carry Case	1
A3144422	Eyecup Assembly	1
A3144268	Head Mount Assembly	1
170-10	Lens Tissue	1

Table A-1 Spare and Repair Parts List, (cont.)

APPENDIX B: WARRANTY INFORMATION

Equipment Warranties And Remedy:

Seller warrants that each newly manufactured item sold hereunder and such portion of a repaired/refurbished item as has been repaired or replaced by Seller under this warranty, shall be free from defects in material or workmanship at the time of shipment and shall perform during the warranty period in accordance with the specifications incorporated herein. Should any failure to conform to these warranties be discovered and brought to Seller's attention during the warranty period and be substantiated by examination at Seller's factory or by authorized field personnel, then at its own cost, Seller shall correct such failure by, at Seller's option, repair or replacement of the non-conforming item or portion thereof, or return the unit purchase price of the non-conforming item or component. Buyer agrees that this remedy shall be its sole and exclusive remedy against Seller and that no other remedy shall be available or pursued by Buyer against Seller. In no event shall the Seller be liable for any cost or expense in excess of those described in this paragraph and expressly excluding any liability or damages for special, incidental or consequential damages.

The warranty period for newly-manufactured items shall extend 12 months from the date of shipment by Seller unless a different warranty period is agreed in writing to by Seller. The warranty period for repaired/refurbished electronic components shall extend for the unexpired warranty period or 90 days, whichever is longer, of the item repaired or replaced.

This warranty shall not extend to any item that upon examination by Seller is found to have been subject to:

- A. Mishandling, misuse, negligence or accident.

- B. Installation, operation or maintenance that either was not in accordance with Seller's specifications and instructions, or otherwise improper.
- C. Tampering, as evidenced, for example, by broken seals, damaged packaging containers, etc.
- D. Repair or alteration by anyone other than Seller without Seller's express advance written approval.

Failure to promptly notify Seller in writing upon discovery of any non-conforming item during the warranty period shall void the warranty as to such item. Buyer shall describe any such non-conformity in detail, expressing its position as to return of any article under the remedy provided herein. No returns shall be accepted without prior approval by Seller.

Return Material Authorization Number (RMA#):

Warranty and non-warranty items returned to Nivisys for repair or replacement require a RMA#. Email support@nivisys.com, call 1-480-970-3222 or fax 1-480-970-3555 with a serial number and detailed information to obtain a RMA#.

THIS WARRANTY IS EXCLUSIVE AND IN LIEU OF ANY OTHER WARRANTY, EITHER EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

NIVISYSTM
LLC

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